CLAIMS

1. A heat generation process with reduced emissions of oxides of sulphur in which:

a) a sulphur-containing fuel is burned in a combustion zone comprising a heat exchange zone in which at least a portion of the heat is extracted, and effluents or combustion fumes are recovered at a temperature in the range 800°C to 1200°C;

b) the fumes resulting from said combustion, charged with oxides of sulphur, are caused to traverse a space for supplying and distributing the fumes to a desulphurisation apparatus functioning with an internal recycle of a solid oxides of sulphur adsorbent;

c) the adsorbent is injected into said space;

d) the fumes are caused to enter said apparatus;

e) the fumes are caused to penetrate into a convection exchange zone and at least a portion of the heat is extracted from said fumes;

f) the mixture resulting from steps b) and c) is separated in a gas/solid separation zone and a portion of the gaseous effluent that has been freed of the major portion of the oxides of sulphur and at least partially cooled is evacuated, and said adsorbent particles comprising said sulphur-containing compounds are evacuated.

2. A process according to claim 1, in which said desulphurisation apparatus comprises a peripheral zone for recycling adsorbent, an intermediate desulphurisation zone into which fumes enter tangentially, and a central zone for evacuating fumes.

3. A process according to claim 1 or claim 2, characterized in that after step f), at least a portion of said adsorbent particles comprising said sulphur-containing compounds is regenerated and the regenerated adsorbent particles are re-injected into the space acting to supply the desulphurisation apparatus.

4. A process according to claim 1 or claim 2, characterized in that a calcitic adsorbent is used and in that the mean desulphurisation temperature is in the range 800°C to 1110°C.

5. A process according to any one of claims 1 to 3, characterized in that a regeneratable magnesian adsorbent is used and in that the mean desulphurisation temperature is in the range 700°C to 1000°C.

6. A process according to any one of the preceding claims, characterized in that after combustion step a), the fumes are traversed by one or more superheated steam bundles.

7. A process according to any one of the preceding claims, characterized in that the adsorbent flow rates are such that the concentration of solids in the fumes, except for the recycle, is in the range 0.1 to 1000 g/Nm^3.

8. A process according to any one of the preceding claims, characterized in that the gas recycle ratio in the apparatus is in the range 1% to 50%.

9. A process according to any one of the preceding claims, characterized in that the adsorbent recycle ratio is in the range 1 to 50.

10. A process according to any one of the preceding claims, characterized in that the grain size of the adsorbents is in the range 0.1 to 1000 microns.

11. A process according to any one of the preceding claims, characterized in that and the density of the adsorbent particles is in the range 100 to 5000 kg/m^3.